Amendments to the Drawings

Replacement Sheets for Figure 2 has been submitted to overcome the drawing objection.

REMARKS

Claims 1, 3, 7-10, 12-14, 17, 19-26, and 28-33 are pending. Claims 1, 10, 14, 17, 19, and 26 have been amended and claims 2, 4-6, 11, 15, 16, 18, and 27 have been canceled. In addition, a Replacement Sheet for Figure 2 has been submitted to overcome the drawing objection.

Reconsideration of the application is respectfully requested for the following reasons.

I. The Rejection under 35 USC § 102(b)

In the Final Office Action, claims1-3, 8-14, and 25-29 were rejected for being anticipated by the Becker patent. Applicants traverse this rejection as follows.

Claim 1 has been amended to recite that "the first interpolator [is] to adjust the phase of the in-phase signal to coincide with a first predetermined point on an eye diagram, and the second interpolator to adjust the phase of the quadrature signal to coincide with a second predetermined point on an eye diagram. In addition to these features, claim 1 recites that "at least one of the phase of the in-phase signal or the phase of the quadrature signal is to be adjusted so that the phase of the in-phase signal at the first predetermined point is non-orthogonal to the phase of the quadrature signal at the second predetermined point on the eye diagram." The Becker patent does not disclose these features.

The Becker patent discloses a timing loop 60 which generates signals for controlling two interpolation circuits. As shown in Figure 2, the first interpolation circuit 50 receives an in-phase (I) component of a received signal and the second interpolation circuit 50 receives a quadrature (Q) component of the received signal. In the Final Office Action, the Examiner indicated that circuits 50 do, in fact, adjust phases of the I and Q signals, specifically by time-shifting these signals using a bank of interpolators 82. (See Figure 4).

Applicants submit that while Becker discloses performing various time-shifts using a bank of interpolators 82, Becker makes no specific disclosure of those time-shifts being performed so that the I and Q signals have a non-orthogonal phase relationship with one another.

Moreover, Becker discloses time-shifting these signals under control of loop 60 to align digital samples with symbols encoded into a baseband signal. (See column 7, lines 9-11). Becker does not disclose a first interpolator that adjusts the phase of the in-phase signal to coincide with a first predetermined point on an eye diagram, and a second interpolator to adjust the phase of the quadrature signal to coincide with a second predetermined point on an eye diagram. Becker also fails to disclose at least one of the phase of the in-phase signal or the phase of the quadrature signal is adjusted so that the phase of the in-phase signal at the first predetermined point is non-orthogonal to the phase of the quadrature signal at the second predetermined point on the eye diagram.

Because the Becker patent does not disclose all the features of claim 1, it is respectfully submitted that Becker does not anticipate this claim or any of its dependent claims.

Independent claim 10 recites that non-orthogonal relationship exists between the phases of the quadrature and in-phase signals after said adjustment, the adjusted phases of the in-phase and quadrature signals corresponding to non-orthogonal positions on an eye diagram. These features are not disclosed by the Becker patent.

Independent claim 14 recites "adjusting the phase of the in-phase signal to coincide with a first point on the eye diagram and adjusting the phase of the quadrature signal to coincide with a second point on the eye diagram, wherein at least one of the phase of the in-phase signal or the phase of the quadrature signal is adjusted so that the phase of the in-phase

signal at the first point is non-orthogonal to the phase of the quadrature signal at the second point on the eye diagram." These features are not disclosed by the Becker patent.

Independent claim 26 recites that "a non-orthogonal relationship exists between the phases of the quadrature and in-phase signals after said adjustment, the adjusted phases of the in-phase and quadrature signals corresponding to non-orthogonal positions on an eye diagram." These features are not disclosed by the Becker patent.

II. The Rejection under 35 USC § 103(a)

Claims 4, 6, 7, 16-24, and 31-33 were rejected for being obvious in view of a Becker-Lee combination. This rejection is traversed as follows.

In order to render the aforementioned claims obvious, the Lee patent must teach or suggest the features of base claims 1, 14, and 26 missing from the Becker patent. The Lee patent does not teach or suggest the features.

The Lee patent discloses using two phase interpolators 29a and 29b to generate I and Q phase clock signals. The clock signals (CKI and CKQ) are adjusted so that **their edges are aligned with the transition portion between two data bits, D0 and D1**. (See column 3, lines 41-50 with reference to Figure 3.). In Figure 3, the data bits are shown as logical values of 0 or 1. These bit values, apparently, were understood by the Examiner to correspond to an eye diagram. But as those skilled in the art can appreciate, the bit values for D0 and D1 are **not** in an eye diagram but rather are incorporated into logical diagram showing logical values of various bits D0, D1, etc. (See, for example, pages 5-7 of Applicants' specification for a description of what an eye diagram is as understood by those skilled in the art).

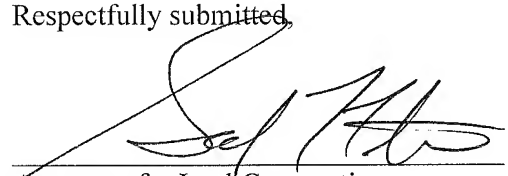
The data bit values shown in Figure 3 are depicted by values in a logic diagram. The purpose of the Lee patent is to make adjustments so that I and Q signals are aligned with the bit values on this logical diagram. Lee does not teach or suggest performing any operation that involves adjusting the phases of I and Q signals so that they are aligned with predetermined positions on an EYE DIAGRAM. Based on these differences, Applicants submit that the Lee patent does not supply the features of claims 1, 14, and 26 missing from the Becker patent.

For at least these reasons, Applicants submit that claims 1, 14, 26, and their dependent claims are allowable.

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and timely allowance of the application is respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 CFR § 1.136. Please charge any shortage in fees due in connection with this application to Deposit Account No. 16-0607 and credit any excess fees to the same Deposit Account.

Respectfully submitted,



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